EFFECT OF PRANAYAM AND NIRVANASHATAKAM ON SELECTED PHYSIOLOGICAL AND PSYCHOLOGICAL VARIABLES OF IT PROFESSIONLS

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PH2022-169

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A

Synopsis

Submitted to

Department of Yogic Sciences
Lakshmibai National Institute of Physical Education,
Gwalior (M.P.) India.

For the award of degree of

Doctor of Philosophy in Yogic Science

DEPARTMENT OF YOGIC SCIENCE

CERTIFICATE

I hereby declare that the synopsis " **EFFECT OF PRANAYAM AND NIRVANASHATAKAM ON SELECTED PHYSIOLOGICAL AND PSYCHOLOGICAL VARIABLES OF IT PROFESSIONLS"** being submitted in partial fulfilment of the requirement for the degree of Doctor of Philosophy in Yoga under the Department of Yogic Sciences, Lakshmibai National Institute of Physical Education (LNIPE), Gwalior, Madhya Pradesh, India, during the academic year 2022-2023.

It is a bonafide record of original work carried out under the supervision of Dr. Padmakar and the co-supervision of Dr. Indu Sharma has not been submitted in full or part to any other university or institute for a degree or diploma.

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ABSTRACT

The research focuses on IT professionals aged 20-50 years, with a sample size of 75 participants divided into three groups: a morning session group, an evening session group, and a control group. The study will examine physiological variables such as circadian rhythm, lipid profile, blood sugar, and blood pressure, as well as psychological variables including Vedic personality traits and burnout. The intervention will last for 10 weeks, with participants practicing pranayama and Nirvana Shatakam.

The methodology section details the selection criteria for subjects, the instruments used for measuring variables, and the administration of tests. The study employs a 2x2 factorial design ANCOVA for statistical analysis, considering pre-intervention measurements as covariates. The research aims to characterize the physiological and psychological variables of IT professionals and study the effects of the yoga intervention, session timing, and their interaction on these variables.

One unique aspect of this study is its focus on IT professionals, a demographic often associated with high stress levels and sedentary lifestyles. By incorporating traditional yogic practices like pranayama and Nirvana Shatakam, the research explores potential solutions for improving both physical and mental well-being in this specific population.

Keywords: Circadian Rhythm; Vedic Personality; Job Burnout; Blood Glucose; Blood Pressure; Lipid Profile; Pranayam; Nirvanashatakam; IT Professionals

CHAPTER-I

Introduction

Yoga is widely regarded within academic circles as one of the six fundamental pillars that constitute the intricate framework of Indian philosophical thought, which has significantly influenced various aspects of both historical and contemporary societal practices. This ancient discipline has been systematically utilized for thousands of years, serving not only as a means of physical exercise but also as a profound methodology through which scholars and practitioners alike seek to explore and elucidate the multifaceted complexities inherent in the workings of the human mind and the broader existential condition of humanity.

In the contemporary context, yoga has been embraced and adapted in a multitude of diverse forms across both the Eastern and Western hemispheres, reflecting its versatility and universal appeal among various cultures and societies. This venerable practice, which dates back to antiquity, is dedicated to the enhancement of physical, mental, and spiritual well-being by diligently concentrating on the holistic integration of all these dimensions within the human experience. The ancient tradition encompasses a comprehensive system that includes techniques for relaxation, meditation, and a series of physical postures, all of which are executed in harmony with controlled breathing patterns. Furthermore, yoga can be aptly characterized as a mindful activity that invites practitioners to cultivate a greater awareness of their inner selves and their surroundings.

The renowned yoga sutra of Patanjali articulates the concept of yoga as "Chitta vritti nirodhah," which can be interpreted to mean that the ultimate purpose of engaging in yoga is the deliberate cessation of the incessant fluctuations and movements of the mind, thereby fostering a state of inner tranquility. Historically, yoga has been esteemed as a spiritual discipline aimed at facilitating the advancement toward an ultimate state of psychophysiological health, which is marked by an elevated level of consciousness that integrates the mind and body. Moreover, yoga is increasingly recognized as a sophisticated form of integrated mind-body medicine that significantly contributes to the enhancement of overall well-being, particularly in the context of addressing stress-related ailments and disorders.

In light of the substantial body of empirical evidence that documents the myriad benefits of yoga in promoting both mental and physical health, a growing number of psychiatrists are now acknowledging its beneficial role in mitigating psychiatric disorders and have begun to incorporate yoga practices into their therapeutic frameworks. The practice of asanas is known to improve physical flexibility, strength, and coordination, while the disciplines of Pranayama and Meditation serve to calm and focus the mind, thereby facilitating a heightened sense of self-awareness and reducing levels of anxiety, ultimately resulting in an enhanced quality of life for practitioners.

Indian IT professionals find themselves increasingly immersed in and influenced by a novel and dynamic work culture that encompasses various dimensions such as employment structures, organizational frameworks, and management practices that are markedly different from those traditionally encountered. In conjunction with the phenomenon of globalization, there has been a significant transformation in their lifestyles, social interactions, and overall sense of identity, resulting in a complex interplay of cultural adaptation and personal evolution. Concurrently, it is noteworthy that a substantial number of Indian software professionals continue to experience a profound and prevailing influence of their indigenous culture and deeply rooted values that shape their perspectives and professional conduct. A considerable segment of these software professionals has come to a profound realization regarding the substantial impact of the changes occurring in their lifestyles and the subsequent implications, which has led to a growing interest in practices such as yoga and other forms of spiritual engagement that promote well-being. The overarching objective of this scholarly study is to conduct a comprehensive analysis of the effects that these spiritual practices may have on various physiological and psychological factors relevant to the well-being of software professionals operating within this rapidly evolving landscape.

Statement of the Problem

The statement of the problem will be stated as “A Study of Effect of Pranayam and nirvana shatakam on Selected Physiological and Psychological Variables IT Professionals.”

Objectives of the Study

- To characterize the level of physiological (circadian rhythm, lipid profile, Blood sugar, Blood pressure) and psychological (Vedic Personality, Burnout) variables of IT professionals.
- To study the effect of pranayam and nirvana shatakam on physiological and psychological variables of IT professionals by considering their pre physiological and psychological variables as covariate.
- To study the effect of (morning and evening) sessions on physiological and psychological variables of IT professionals by considering their pre physiological and psychological variables as covariate.
- To study the interaction effect between treatment (pranayam, nirvana shatakam) and session (morning, evening) on physiological and psychological variables of IT professionals by considering their pre physiological and psychological variables as covariate.

Research Question

- Is there any effect of pranayam, nirvana shatakam in selected physiological variables.
- Is there any effect of pranayam, nirvana shatakam in selected psychological variables.
- Is there any significant difference between the effect of pranayam, nirvana shatakam training in two experimental groups (morning, evening session).

Hypotheses

Based on related literature, expert opinion, and scholar's own insight about the research problem, following hypotheses are framed.

HO_1: There is no significant effect of yoga intervention (pranayam, nirvana shatakam) and (morning, evening) session and their interaction on psychological variables of IT Professionals by considering their prepsychological variables as covariates.

HO_2: There is no significant effect of yoga intervention (pranayam, nirvana shatakam) and (morning, evening) session and their interaction on physiological variables of IT Professionals by considering their prephysiological variables as covariates.

Delimitations

- The study is delimited to the age group 20 to 50 years.
- The study is delimited to only 75 employee of IT company.
- This study is further delimited to 10 weeks intervention of pranayam, nirvana shatakam.
- The following Physiological and Psychological variables were selected for the purpose of the study:

  Physiological Variables: Circadian rhythm, Lipid profile, Blood Sugar, Blood Pressure

  Psychological Variables: Vedic Personality Traits, Burnout

Significance of the Study

- This study will be helpful for gaining details of effects of pranayam, nirvana shatakam on the psychological and physiological health.
- The study may assist IT professionals to reduce work related stress and management of workload.
- This study may prove useful for improving the overall vedic personality of Professionals.
- This study will create an alternative solution for these types of professionals to release their physical and emotional exhaustion and will improve their overall health.

CHAPTER – II

Review Of Related Literature

The following literature reviews provide a more comprehensive understanding of this present study are as follows:

The study was a pre-post intervention study. The variables were measured at the beginning and the end of a one-month yoga course. There was no control group. 108 subjects were selected out of 198 volunteers to form the experimental yoga group. Ages ranged from 17 to 63 years. The Yog asana (postures), pranayama (breathing exercises), relaxation techniques, meditation, chanting and lectures were the components of yoga intervention. The variables measured were sustained attention, emotional intelligence – EQ, general health – GHQ, guna personality – sattva, rajas and tamas. Significant pre-post changes were found in all variables. Significant correlations were found between the following pairs: The two sustained attention variables; emotional intelligence and general health; GHQ and tamas; sattva and tamas; and rajas and tamas. The study shows that there were significant changes in all variables through integral yoga ($P< 0.001$) except in sattva. It also confirms that EQ and general health variables correlate significantly with each other and negatively with tamas. EQ and tamas form positive and negative predictors of health respectively. Sattva correlates positively with EQ suggesting that a sattvic personality indicates better self-control. This suggests that, by improving guna personality, long-term yoga practice may stabilize EQ. **(Khemka et al., 2011)**

Two hundred twenty-six subjects who consented to participate in the study, were randomly allocated into two groups of equal size. This study had a prospective, randomized, single-blind control design to compare the efficacy of yoga (Y) with that of physical exercise (PE) as a control intervention in normal healthy volunteers in a south Indian population. The Gita Inventory of Personality (is based on the concept of Gunas (personality) from the Bhagavad-Gita, a traditional text of yoga, which was developed by Das in 1991. This measure of the three Gunas contains ten questions that have three response choices. They measured the general health and guna variables and found significant improvement ($P<0.001$) on all the four domains in both Yoga and exercise groups while increase in sattva in both the groups and decrease of rajas and tamas in yoga and physical exercise group after the intervention in a non-residential set up with daily 1-hour classes for eight weeks.

This randomized interventional study has shown that the improvement in the Yoga group is more when compared to the physical exercises' group for all the Gunas, with accompanying promotion of positive health and self-esteem. **(Deshpande et al., 2008)**

Indian software professionals living in Bengaluru, India, working with various companies in Bengaluru were randomly selected. Online survey questionnaire was sent to 320 people. one hundred and forty-one people completed the questionnaire and responded. They were divided into yoga group and a yoga group on the basis of survey. In the yoga group, job stress showed significant negative relationship with job satisfaction and positive correlation with psychosomatic health symptoms. However, yoga group showed no significant relationship between job satisfaction and psychosomatic health symptoms. Also, yoga group scored significantly low in job stress and health compared with nonyoga group. **(Madhura et al., 2014)**

In 2020, Rankhambe and Pande studied the influence of Om Mantra Meditation on the anxiety levels of a total of 100 bus drivers who were randomly divided into two groups; the testing group and the control group. The testing group practiced Om MM for 20 min daily for 6 days/week for 4 weeks, while the control group did not involve in any meditation practice. The Hamilton anxiety rating scale was used to evaluate anxiety levels before and after the 4-week duration. The self-reported outcome of the testing group showed that the anxiety levels were significantly reduced after practicing 4-week Om MM, while the changes of the anxiety scores of controls were insignificant. **(Rankhambe & Pande, 2021)**

The serum melatonin and serotonin levels of long-term meditators (n=30), recruited using a validated interview, and age, gender and educational level matched control subjects (n=30) who had never practiced meditation, were determined using commercial ELISA kits. The median concentration of melatonin (18.3 pg/ml) and serotonin (149.0 ng/ml) in the meditator group, were significantly higher compared to the control group; melatonin (15.6 pg/ml; $p = 0.006$), serotonin (118.1 ng/ml; $p < 0.001$). The levels had no significant correlation with demographic factors but positively correlated with meditation factors in those who had meditated for <=10years (n=26, $p < 0.05$). The findings indicate elevated melatonin and serotonin levels in the long-term meditators with potential beneficial effects in decreasing stress and improving relaxation in individuals. **(Thambyrajah et al., 2023)**

Melatonin, the hormone produced by the pineal gland at night, serves as a time cue to the biological clock and promotes sleep anticipation in the brain default mode network (DMN); these effects may explain the increase in sleep propensity in circadian rhythm sleep disorders and the enhanced restorative sleep in older patients with insomnia. With age and certain diseases, the robustness of the circadian system decreases and melatonin production is diminished or shifted. Deviant circadian rhythms and poor sleep quality are associated with increased risks of cardiovascular, metabolic and cognitive diseases, poor quality of life and mortality**. (Zisapel, 2018)**

(Ravindra & Babu, 2021) explores the relationship between the Indian psychological concept of Tri-Guna and various emotional styles. The study involved 121 healthy adults aged 18-21, who were assessed using questionnaires to evaluate their Tri-Guna and emotional styles. Sattva was positively correlated with all emotional styles except resilience, which showed a negative correlation with Sattva but positive with Rajas and Tamas. This suggests that Sattva is associated with positive emotional patterns, while Rajas and Tamas may lead to less favourable emotional outcomes.

The study found that individuals with Sattva predominance exhibited higher attention and self-awareness. The findings suggest that enhancing Sattva characteristics could lead to improved emotional intelligence and overall well-being.

This preliminary study provides valuable insights into the interplay between Tri-Guna and emotional styles.

CHAPTER III

Methodology

Selection of Subjects

For the purpose of the study, seventy-five (n=75) IT Professionals will be selected from an information technology company. The age of the subjects ranged from 20-50.

75 Subjects will be selected using simple random sampling. Further, the subjects will randomly be placed in equal number among three groups (1 Morning session group, 1 Evening session group and 1 control group)

The inclusion criteria will be:

1. Both male and female IT employee will be included.
2. Both service-based and product-based company professionals were included.

The exclusion criteria will be:

1. Employee on some regular prescribed medication will be excluded.
2. Employee with some chronic disease will be excluded.

Subjects provided written and voluntary consent prior to their involvement in the study and ensured that they would not be involved in any other training and experiment.

Selection of Variables

Physiological Variable

1. Circadian Rhythm
2. Lipid Profile
3. Blood Sugar Level
4. Blood Pressure

Psychological Variables

1. Vedic Personality Traits
2. Job Burnout

Selection of Instruments

The following are criterion measures chosen for testing the hypothesis in the study.

1. MORNINGNESS-EVENINGNESS QUESTIONNAIRE Self-Assessment Version (MEQ-SA)1 for assessing Circadian rhythm.

2. Laboratory test of blood sample for lipid profile test

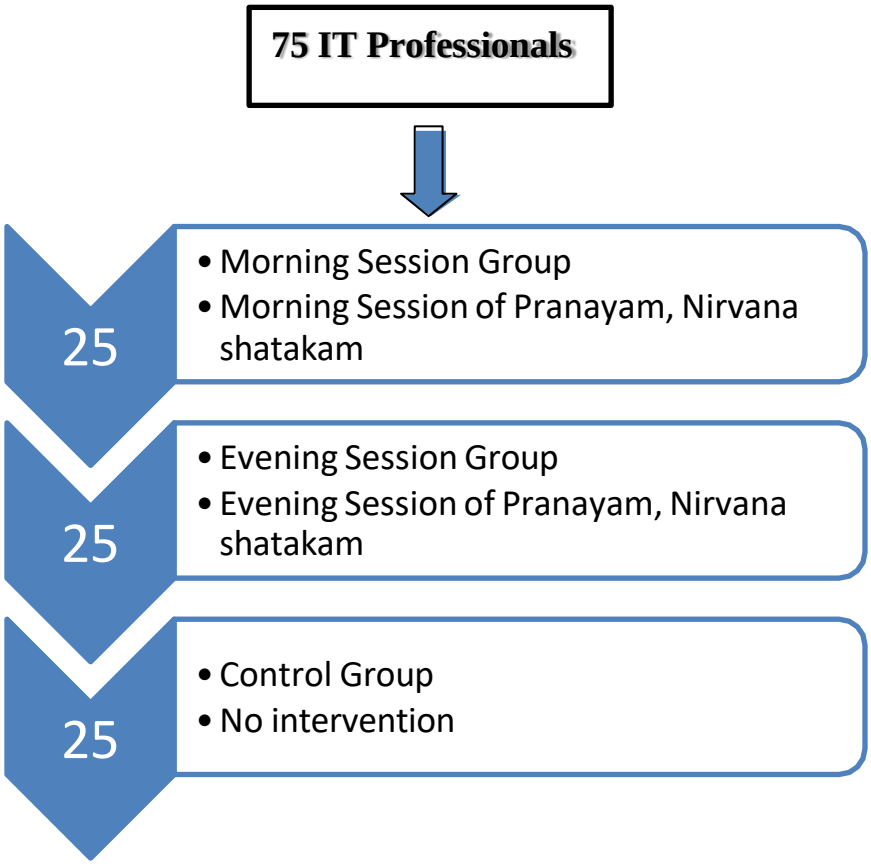
3. Blood glucose monitor machine for blood glucose level.

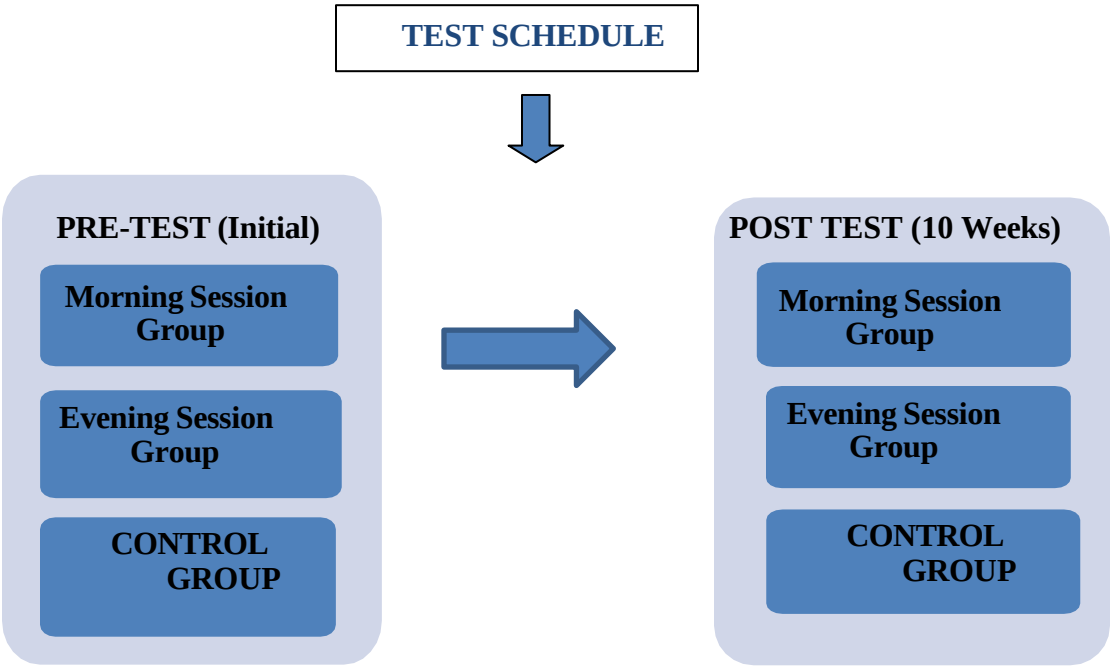
4. Digital sphygmomanometer machine for blood pressure.

5. Vedic Personality Inventory (VPI) for vedic personality trait

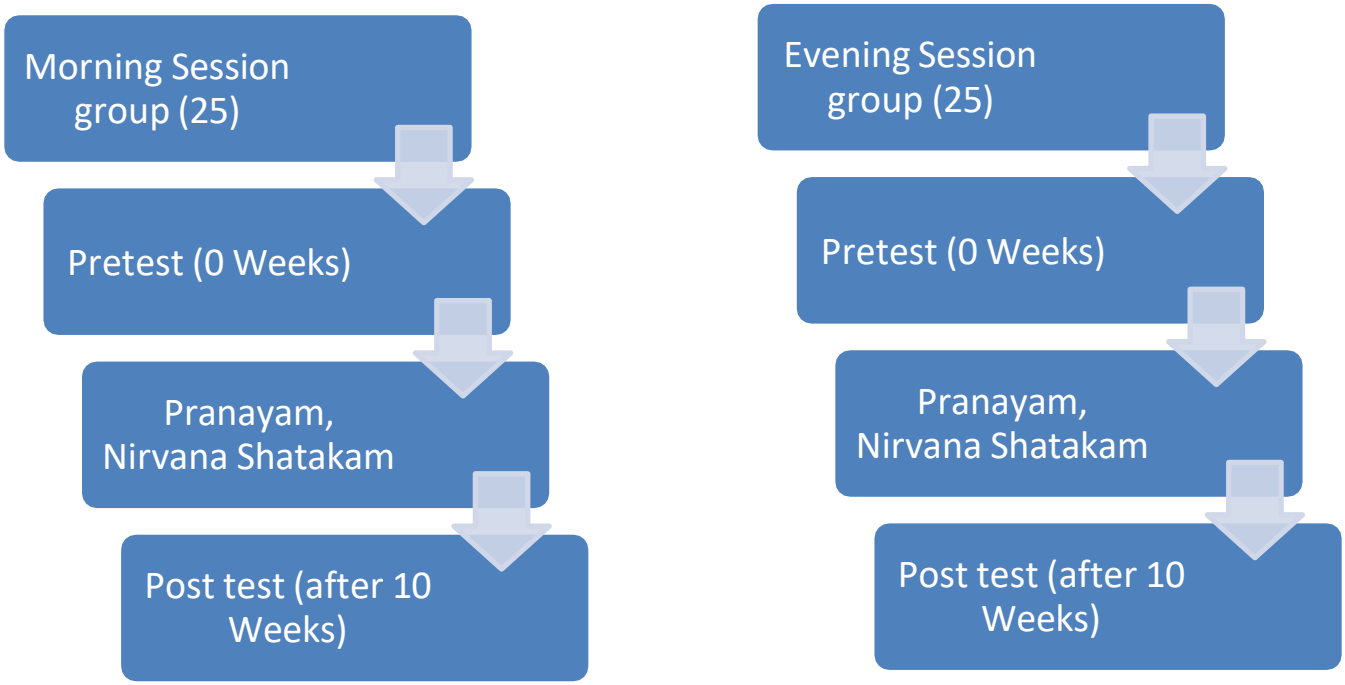
6. Burnout Questionnaire for Job Burnout

Layout of Experimental Design





Training Protocol



Collection of Data

The data will be collected before giving any training to both the experimental group and the control group. After 10 weeks on completion of the pranayam, Nirvana Shatakam training again the data will be collected of both the experimental group and the control group as well.

Statistical Analysis

- To characterize the level of physiological Variable (circadian rhythm, lipid profile, Blood sugar, Blood pressure) psychological variable (Vedic Personality, Burnout) variables of IT professionals, **Descriptive statistics will be used.**
- To study the effect of yoga intervention (pranayam and Nirvana Shatakam), (morning and evening) session and their interaction on psychological and physiological variables of IT professionals by considering their prephysiological and psychological variables as covariate, **2×2 Factorial Design ANCOVA will be used.**

Expected Outcome

1. The study aims to characterize the level of physiological and psychological variables in IT professionals.
2. It seeks to determine the effects of pranayama and Nirvana Shatakam on above stated variables.
3. The research intends to examine the impact of morning and evening sessions on the selected variables.
4. The study will investigate the interaction effect between the treatment (pranayama, Nirvana Shatakam) and session timing (morning, evening) on the variables.
5. It is hypothesized that there might be significant effects on both psychological and physiological variables after the yoga intervention.

Overall, the study is expected to provide insights into how pranayama and Nirvana Shatakam practices affect various physiological and psychological aspects of IT professionals, potentially offering solutions for stress management and overall health improvement in this population.

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